November 8, 2002

Mr. John L. Skolds
Chief Operating Officer
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION - NRC INTEGRATED INSPECTION REPORT 50-277/02-05, 50-278/02-05

Dear Mr. Skolds:

On September 28, 2002, the NRC completed an inspection at the Peach Bottom Atomic Power Station. The enclosed report documents the inspection findings which were discussed on October 11, 2002, with Mr. Rusty West and other members of your staff.

This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, the inspectors identified two issues of very low safety significance (Green). One of these issues was determined to involve a violation of NRC requirements. However, because of its very low safety significance and because it has been entered into your corrective actions program, the NRC is treating this issue as a non-cited violation, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you deny the non-cited violation noted in this report, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the Peach Bottom facility.

The NRC has increased security requirements at the Peach Bottom Atomic Power Station in response to terrorist acts on September 11, 2001. Although the NRC is not aware of any specific threat against nuclear facilities, the NRC issued an Order and several threat advisories to commercial power reactors to strengthen licensees' capabilities and readiness to respond to a potential attack. The NRC continues to inspect the licensee's security controls and its compliance with the Order and current security regulations.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reactors/operating/oversight.html (the Public Electronic Reading Room).

If you have any questions, please contact me at 610-337-5209.

Sincerely,

/RA/

Mohamed Shanbaky, Chief
Projects Branch 4
Division of Reactor Projects

Docket Nos.: 50-277, 50-278
License Nos.: DPR-44, DPR-56

Enclosure: Inspection Report No. 50-277/02-05 and 50-278/02-05

Attachment: (1) Supplemental Information

cc w/encl: Senior Vice President, Mid-Atlantic Regional Operating Group
Chief, Operating Officer, Exelon Generation Company, LLC
Senior Vice President, Operations Support
Vice President, Mid-Atlantic Operations Support
Senior Vice President, Nuclear Services
Site Vice President, Peach Bottom Atomic Power Station
Plant Manager, Peach Bottom Atomic Power Station
Vice President - Licensing
Director, Licensing, Mid-Atlantic Regional Operating Group
Director, Nuclear Oversight
Regulatory Assurance Manager - Exelon Generation Company, LLC
Vice President and General Counsel
D. Quinlan, Manager, Financial Control, PSEG
R. McLean, Power Plant Siting, Nuclear Evaluations
D. Levin, Acting Secretary of Harford County Council
R. Ochs, Maryland Safe Energy Coalition
Mr. & Mrs. Dennis Hiebert, Peach Bottom Alliance
Mr. & Mrs. Kip Adams
D. Allard, Director, Pennsylvania Bureau of Radiation Protection
R. Janati, Chief, Division of Nuclear Safety, Pennsylvania Bureau of Radiation Protection
Correspondence Control Desk
Commonwealth of Pennsylvania
State of Maryland
TMI - Alert (TMIA)

Board of Supervisors, Peach Bottom Township
R. Fletcher, Department of Environment, Radiological Health Program
J. Johnsrud, National Energy Committee, Sierra Club
Public Service Commission of Maryland, Engineering Division
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S. Wall, PM, NRR (Backup)
Region I Docket Room (with concurrences)

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DATE	11/8/02		11/8/02	

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U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Docket Nos:	50-277, 50-278
License Nos:	DPR-44, DPR-56
Report Nos:	50-277/02-05, 50-278/02-05
Licensee:	Exelon Generation Company, LLC Correspondence Control Desk 200 Exelon Way, KSA 1-N-1 Kennett Square, PA 19348
Facility:	Peach Bottom Atomic Power Station Units 2 and 3
Location:	1848 Lay Road Delta, Pennsylvania
Inspection Period:	June 30, 2002 through September 28, 2002
Inspectors:	A. McMurtray, Senior Resident Inspector M. Buckley, Resident Inspector J. Richmond, Resident Inspector (Susquehanna) R. Nimitz, Senior Health Physicist J. Jang, Senior Health Physicist S. Chaudhary, Senior Reactor Engineer A. Lohmeier, Reactor Inspector J. Carrasco, Reactor Inspector P. Bissett, Senior Operations Engineer
Approved by:	Mohamed M. Shanbaky, Chief Projects Branch 4 Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000277-02-05, IR 05000278-02-05; Exelon Generation Company; on 06/30-09/28/2002; Peach Bottom Atomic Power Station; Units 2 and 3. Refueling and Other Outage Activities.

This inspection was conducted by resident inspectors, reactor inspectors, a senior reactor engineer, a senior operations engineer, and senior health physicists. Two findings of very low safety significance were identified during the inspection. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be "Green" or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000."

A. Inspector Identified Findings

Cornerstone: Initiating Events

- **Green**. The inspectors identified a finding of very low safety significance because Exelon failed to identify that the 2BH003 rigging hoist had not been adequately load tested prior to initial use. During the 2R14 refueling outage, on September 21, 2002, a chain broke in the 2BH003 rigging hoist and the 2 'B' recirculation pump motor, weighing approximately 48,000 pounds, fell approximately ten inches onto the pump/motor stand. Exelon committed to meet the requirements of ANSI B30.2-1967, that required 2BH003 be tested to at least 125 per cent of rated load prior to initial use. The 2BH003 rigging hoist had only been tested to 100 per cent of rated load prior to initial use.

  The finding was determined to be of very low safety significance because the 2 'B' reactor coolant system barrier and the permanent reactor coolant system piping and component supports were not damaged when the motor fell. Also, the 'B' subsystem of shutdown cooling was in-service; the reactor vessel level was greater than 22 feet above the top of the vessel flange; and the reactor coolant system time-to-boil was approximately 36 hours during this event. (Section 1R20)

Cornerstone: Mitigating Systems

- **Green**. The inspectors identified a non-cited violation (NCV) of very low safety significance of Technical Specification 5.4.1, "Procedures." Maintenance procedure M-C-700-332, "Rigging and Handling Heavy Loads," used for lifting the 2 'B' recirculation pump motor, did not contain any instructions requiring that the 'A' subsystem of residual heat removal shutdown cooling to be operable during the motor lifts. The licensee's analysis of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants," noted the need for 'A' subsystem of shutdown cooling to be operable when lifting the 'B' recirculation pump motor. During the 2R14 refueling outage, a chain broke in the 2BH003 rigging hoist and the 2 'B' motor, weighing approximately 48,000 pounds, fell approximately ten inches onto the pump/motor stand. The 'A' subsystem of residual heat removal was inoperable during this event.

Summary of Findings (cont'd)

This NCV was determined to be of very low safety significance because the 'B' subsystem of shutdown cooling remained in-service during this event. (Section 1R20)

Report Details

SUMMARY OF PLANT STATUS

UNIT 2

Unit 2 began this inspection period at 100 percent power. On July 21, 2002, the fifth stage feed water heaters were removed from service for end-of-cycle coastdown. On August 4, the fourth stage feed water heaters were removed from service. On September 10, 2002, Unit 2 was manually scrammed, in preparation for the 2R14 refueling outage. Unit 2 ended the inspection period shutdown in Mode 5 (refueling).

UNIT 3

Unit 3 began this inspection period at 100 percent power. On August 30, 2002, Unit 3 power was reduced to approximately 90 percent prior to shutting down the 3'A' circulating water pump because of high differential pressures on the circulating water intake screens. The high differential pressures were caused by a sudden surge in the amount of fish (Gizzard Shad) that entered the intake canal and clogged the screens. Unit 3 power was returned to 100 percent following cleaning of the circulating water screens and restarting of the 3'A' circulating water pump. Unit 3 operated at approximately 100 percent power for the remainder of the inspection period, except for brief scheduled periods to support maintenance activities or for planned testing and control rod pattern adjustments.

1. REACTOR SAFETY [R]
Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

a. Inspection Scope

The inspectors reviewed Exelon's procedure, AG-108, Revision 6, "Preparation for Severe Weather," which described Exelon's preparations for severe weather conditions at Peach Bottom. The inspectors also reviewed NRC Information Notice 84-69, "Operation of Emergency Diesel Generators," following identification of an inspection finding at the Ginna station regarding loading of an emergency diesel generator onto the grid during severe thunderstorms and high winds. The inspectors discussed these severe weather preparations with station engineering, operations, and work management personnel.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

.1 Partial System Walkdown

a. Inspection Scope

The inspectors performed a partial system walkdown to verify system and component alignments and note any discrepancies that would impact system operability. The inspectors verified selected portions of redundant or backup systems/trains were available while a system was out-of-service. The inspectors reviewed selected valve positions, electrical power availability, and the general condition of major system components. The walkdown involved the following systems:

- Emergency diesel generators, switchgear and electrical buses while the E-22 emergency bus was out-of-service for maintenance and testing
- Unit 3 high pressure service water system lineup while cross-tied to supply cooling to Unit 2 residual heat removal heat exchangers

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors reviewed the Fire Protection Plan, Technical Requirements Manual, and the respective Pre-Fire Action Plan procedures to determine the required fire protection design features, fire area boundaries, and combustible loading requirements for the areas examined during this inspection. The inspectors then performed walkdowns of these areas to assess control of transient combustible material and ignition sources, fire detection and suppression capabilities, fire barriers, and any related compensatory measures. The fire areas included:

- Unit 2 control rod drive equipment area and corridor, drywall access, and isolation valve compartment
- Units 2 and 3 main turbine lube oil storage tanks and transfer equipment
- Units 2 and 3 standby liquid control and nitrogen air compressor areas
- Units 2 and 3 reactor building closed cooling water heat exchanger and pump areas
- Units 2 and 3 13.2kV switchgear areas
- Unit 2 refuel floor

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

.1 External Flood Protection

a. Inspection Scope

The inspectors reviewed the station's external flood analysis, flood mitigation procedures, and design features, to verify whether they were consistent with the Peach Bottom design requirements and industry standards. The inspectors walked down selected risk significant plant areas, including the moats and surrounding areas for large on-site tanks. The inspectors evaluated the condition and adequacy of room flood detectors, sump pumps, sump level alarm circuits, watertight doors, and other flood protection design features. The inspectors assessed whether these flood protection design features, for equipment located below the postulated flood levels, were adequate and operable. During the walk downs, the inspectors also verified whether there were any unidentified or unanalyzed sources of flooding, including holes and un-sealed penetrations in floors and walls. The specific areas included:

- Unit 2 and 3 reactor building to turbine building watertight doors, elevation 135 feet and below
- Emergency diesel generator building
- High pressure service water pump rooms
- Units 2 and 3 condensate storage tanks
- Refueling water storage tank
- Torus de-watering tank
- Auxiliary boiler fuel oil storage tank

The inspectors reviewed the station's flood mitigation procedures, flood alarm response procedures, and selected preventive maintenance tasks and surveillance tests for room flood detectors, flood barriers, and watertight doors to evaluate whether component functionality was routinely verified. In addition, the inspectors reviewed the station's corrective action program, including system health reports, and interviewed selected system engineers and maintenance personnel to verify whether previous flood related issues had been appropriately identified, evaluated, and resolved. The following procedures were included in the review:

- Updated Final Safety Analysis Report (UFSAR) Section 2.4.3.5.3, "Flood Studies or Flood Design Considerations"
- UFSAR Section 2.4.3.5.5, "Emergency Shutdown due to High or Low Water Level in the Conowingo Pond"
- UFSAR Appendix C, Section 2.5.4, "Flood Loads and Flood Protection"
- Peach Bottom Atomic Power Station (PBAPS) Individual Plant Examination for External Events, Section 5.2, "External Floods"
- PBAPS Fire Protection Plan, Section 6.3, "Analysis of the Yard"
- Technical Requirements Manual and Bases, Section 3.15, "River Level"
- Design Basis Document P-T-07, revision 2, "External Hazards," Section 3.1.2, "Flooding Analysis"
- SE-4, revision 19, "Flood"
- SE-4 Bases, revision 9, "Flood"
- A-C-134, revision 4, "Control of Hazard Barriers"

b. Findings

No findings of significance were identified.

.2 Internal Flood Protection

a. Inspection Scope

The inspectors reviewed the station's internal flood analysis, flood mitigation procedures, and design features, to verify whether they were consistent with the PBAPS design requirements and industry standards. The inspectors walked down selected risk significant plant areas to verify whether room flood detectors, watertight doors, sump pumps, and other flood protection design features were adequate and operable. During the walk downs, the inspectors also verified whether there were any unidentified or unanalyzed sources of flooding, including holes and un-sealed penetrations in floors and walls, between flood areas, and between common drain systems and sumps and the flood areas. The specific areas included:

- Unit 2 residual heat removal system pump rooms
- Unit 2 high pressure coolant injection system pump rooms
- Unit 2 reactor core isolation cooling system pump rooms
- Unit 2 core spray pump rooms
- Unit 2 and 3 high pressure service water system pump rooms

The inspectors reviewed the station's preventive maintenance tasks and surveillance tests for room flood detectors, flood barriers, and watertight doors to evaluate whether component functionality was routinely verified. In addition, the inspectors reviewed the station's corrective action program, including system health reports, and interviewed selected system engineers and maintenance personnel to verify whether previous flood related issues had been appropriately identified, evaluated, and resolved. The specific procedures and documents reviewed included:

- PBAPS Individual Plant Examination [Internal Events], Section 3.3.8, "Internal Floods"
- T-103, revision 14, "Secondary Containment Control"
- T-103 Bases, revision 12, "Secondary Containment Control"
- HPCI, RCIC, RHR, and Core Spray alarm response procedures for "Pump Room Flooded"
- Design Basis Document P-T-09, revision 8, "Internal Hazards," Section 3.1.4, "Internal Flooding Analysis"
- A-C-134, revision 4, "Control of Hazard Barriers"
- AO-20A.1, revision 10, "Temporary Removal and Installation of Flood Barriers in the Reactor Building Drainage System"
- Maintenance Rule Basis Document and System Health Report for Secondary Containment

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance

.1 Biennial Inspection

a. Inspection Scope

The inspectors reviewed Exelon's performance monitoring and maintenance activities for selected safety-related heat exchangers in the high pressure service water and emergency service water systems to determine whether the capability of this equipment was adequately maintained. The inspectors also reviewed Exelon's monitoring and maintenance activities for consistency with their response to Generic Letter 89-13, "Service Water Problems Affecting Safety-Related Equipment." Specifically, the inspectors reviewed the performance of the Unit 2 and 3 residual heat removal (RHR) heat exchangers, core spray and RHR room coolers, and core spray pump motor oil coolers. The inspectors verified the RHR heat exchanger performance test methodology and acceptance criteria were consistent with accepted industry practice. The inspectors reviewed Exelon's fourth revision of calculation PM-0589, "RHR Heat Exchanger Performance Evaluation," and verified it contained updated acceptance criteria for heat exchanger performance evaluations and reflected recommendations made by General Electric Service Information Letter (SIL) No. 636. The inspectors also verified that the original design basis heat transfer of the RHR heat exchangers was revised to reflect higher heat transfer and exchange duty capabilities.

The inspectors walked down the Unit 2 and 3 RHR pump rooms, the core spray pump rooms, and the intake structure to assess the material condition of the equipment. The inspectors also reviewed individual test packages and calculations that determined fouling factors using the "Balance" computer program. The inspectors verified this computer program was appropriately bench marked, verified, and validated. Additionally, the inspectors reviewed Condition Report (CR) # 102216, regarding an incorrect fouling factor calculated during an RHR heat exchanger performance test performed on March 12, 2001, to verify that Exelon implemented appropriate corrective actions.

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection

a. Inspection Scope

The inspectors reviewed several selected safety evaluations associated with initiating events, mitigating systems, and barrier integrity cornerstones. The inspectors verified that Exelon's inspection activities would preclude or curtail the material degradation of safety related components at the facility. The inspectors also verified that Exelon personnel were adhering to the inspection procedures and acceptance criteria of the UFSAR, 10 CFR 50, Regulatory Guides, and the ASME Boiler and Pressure Vessel Code Sections III and XI. The inspectors' reviews included samples of several non-destructive inspection techniques utilized by Exelon, documentation of examination results, and disposition of the findings of these examinations such that safety issues pertinent to the inspection findings were adequately addressed. Safety related components were selected for review on the basis of their safety significance.

Activities inspected during refuel outage 2R14 included observation of manual ultrasonic testing (UT) in progress of the upper reactor pressure vessel (RPV) head dollar plate weld CH-C-1. Furthermore, the history of previous test results and their disposition were reviewed for the planned meridional upper head weld inspection during 2R14 using General Electric automated UT systems. Also reviewed were the UT results of the RPV safe-end to nozzle N2C weld, RPV closure head to nozzle weld N6A CH-NA, RPV closure head nozzle N6A to shell weld CH-NA-IRS inner radius examination, UT in - place examination of CH stud nos. 1-92, and UT examination results of core spray T-box cracks. The inspectors reviewed magnetic particle examination and disposition of weld 14HB-H5 (IA) linear indication found in core spray system integral attachment. The inspectors reviewed results of radiographic examination findings and disposition of a crack and lack of fusion in weld 23-2TI16-2 of CHK-2-23C-65. The inspectors also reviewed photographs and video tapes of tie rod bar fractures and deformation from in-vessel visual inspection (IVVI) findings in the RPV steam dryer and the repair disposition of these steam dryer tie rod bars. For selected inspections, the inspectors reviewed the procedures, calibrations, and inspection personnel qualification records for selected examinations.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program

a. Inspection Scope

On August 29, 2002, the inspectors observed license operator performance for an emergency preparedness drill during the Licensed Operator Requalification Training Cycle 02-03. The training included crew performance of the Mini-Integrated Drill scenario (PA1) on the simulator to address events and conditions requiring classification and responses for emergencies. This observation included the Peach Bottom evaluator's critiques of the operators' performance to ensure that any operator performance errors were detected and corrected. The inspectors focused on the

operating crew's satisfactory completion of critical tasks, including proper and timely identifications and classifications of emergencies. The inspectors verified that the emergency action levels were identified and classified, as required, and that notifications were appropriately made. Also, the inspectors evaluated whether the operators adhered to Technical Specifications, emergency plan implementation and the use of the emergency operating procedures.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Effectiveness

a. Inspection Scope

The inspectors reviewed the follow-up maintenance activities for issues identified on systems, structures, or components (SSCs) and the performance of these SSCs, to assess the effectiveness of Exelon's maintenance activities. The inspectors verified that problem identification and resolution of these issues had been appropriately monitored, evaluated, and dispositioned in accordance with Exelon's procedures and the requirements of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance." In addition, the inspectors reviewed system performance criteria and goals, and improvement plans to verify that the actions were reasonable and appropriate. The following system, equipment problems, and documents were reviewed:

Systems

- Unit 2 and 3 drywell chillers

Procedures and Documents

- Peach Bottom Maintenance Rule Bases Documentation
- System Health Overview Report for Systems No. 44 (Drywell Chilled Water)
- ER-AA-310, Rev 1, "Implementation Of The Maintenance Rule"
- ER-AA-310-1001, Rev 0, "Maintenance Rule - Scoping"
- ER-AA-310-1002, Rev 0, "Maintenance Rule - SSC Risk Significance Determination "
- ER-AA-310-1003, Rev 0, "Maintenance Rule - Performance Criteria Selection"
- ER-AA-310-1004, Rev 0, "Maintenance Rule - Performance Monitoring"
- Recent action requests for Unit 2 and 3 drywell chillers
- WC-AA-101, Rev 6, "On-line work Control Process"

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

The inspectors reviewed Exelon's risk evaluations and contingency plans for selected planned and emergent work activities to verify that appropriate risk evaluations were performed and to assess Exelon's management of overall plant risk. The inspectors compared the risk assessments and risk management actions against the requirements of 10 CFR 50.65(a)(4) and the recommendations of NUMARC 93-01 Section 11, "Assessment of Risk Resulting from Performance of Maintenance Activities." The inspectors verified that risk assessments were performed when required and appropriate risk management actions were identified.

The inspectors attended planning meetings and discussed the risk management of the activities with operators, maintenance personnel, system engineers, and work coordinators to verify that risk management action thresholds were identified correctly. The inspectors also verified that appropriate implementation of risk management actions were performed. The following planned and emergent work activities were reviewed:

- Delay of undervoltage testing of 4 kV emergency buses E-22 and E-32 with Unit 2 RCIC inoperable
- Delay of emergency bus testing during an unplanned inoperability of the E-4 emergency diesel generator
- Review of several schedule changes to accommodate Maximum Emergency Generation Alert conditions on the grid during the week of August 5, 2002
- Unit 3 Reactor Building to Torus Vacuum Breaker valve, AO-3-07B-3502A, inoperable due to slow opening time
- Unit 2 Drywell/Reactor Building Equipment Ventilation Exhaust Damper, AO-2-40B-20469-02, inoperable due to slow opening time

In addition, the inspectors reviewed the assessed risk configurations against the actual plant conditions and any in-progress evolutions or external events to verify that the assessments were accurate, complete, and appropriate for the issues. The inspectors performed control room and field walkdowns to verify that compensatory measures identified by the risk assessments were appropriately performed.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance Related to Non-routine Plant Evolutions and Events

a. Inspection Scope

The inspectors reviewed plant computer and recorder data, operator logs and approved procedures and observed control room operators while evaluating the performance of operations personnel in response to non-routine evolutions. The inspectors assessed personnel performance to determine whether the operator's response was appropriate and in accordance with plant operating and emergency procedures and training. The following non-routine evolutions were observed:

- Plastic piping fire in a laydown area outside the protected area near the abandoned ‘D’ and ‘E’ environmental cooling towers on August 12, 2002
- Shutdown of the 3'A’ circulating water pump and Unit 3 power reduction due to fish (Gizzard Shad) buildup on the circulating water pump intake screens

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed four operability evaluations to assess the adequacy of the evaluations, the use and control of compensatory measures, compliance with the Technical Specifications, and the risk significance of the issues. The inspectors verified that the operability determinations were performed in accordance with LS-AA-105, Rev. 0, “Operability Determinations” and CC-AA-11, Rev. 0, “Nonconformances.” The inspectors used the Technical Specifications, Technical Requirements Manuals, the Final Safety Analysis Report, and associated Design Basis Documents as references during these reviews. The issues reviewed included:

- E-4 emergency diesel generator with excessive receiver check valve leakage
- Failed auxiliary contact on the reverse current relay for Unit 2 HPCI pump test line isolation valve, MO-2-23-31
- 2'B’ high pressure service water pump with wrong permissive relay installed
- Solenoid replacement following slow opening time of the Unit 2 Drywell/Reactor Building Equipment Ventilation Exhaust Damper, AO-2-40B-20469-02

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed the following permanent plant modification package to verify that (1) the design bases, licensing bases, and performance capability of risk significant structures systems or components (SSCs) had not been degraded through modifications, and (2) modifications performed during increased risk configurations did not place the plant in an unsafe condition. The following modification package was reviewed:

- Unit 2 HPCI turbine thrust bearing replacement (ECR PB 95-05165)

The following documents were used during the modifications reviews:

- PBAPS UFSAR Section 6.0, “Core Standby Cooling Systems”

- PBAPS Unit 2 Technical Specifications, Section 3.5, “Emergency Core Cooling System and RCIC System”
- Design Basis Document (DBD) P-S-03, Rev. 19, “HPCI System”
- GE Specification, HPCI System, M-1-U-203

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors observed portions of post-maintenance testing activities in the field and reviewed selected test data at the job site. The inspectors observed whether the tests were performed in accordance with the approved procedures and assessed the adequacy of the test methodology based on the scope of maintenance work performed. In addition, the inspectors assessed the test acceptance criteria to verify whether the test demonstrated that the tested components satisfied the applicable design and licensing bases and the Technical Specification requirements. The inspectors reviewed the recorded test data to evaluate whether the acceptance criteria were satisfied. The specific activities reviewed included:

- Leak tightness of an air receiver check value for the E-4 emergency diesel generator following valve repairs (ST-O-52C-424-2, Rev. 4)
- Unit 2 core spray loop ‘A’ pump, valve, flow, and cooler functional and inservice test (ST-O-014-301-2, Rev. 25) after planned maintenance
- Unit 2 high pressure service water bay inlet isolation valve, MO-2804A&B, post-maintenance functional test (ST-0-032-301-2, Rev. 18) following feeder breaker replacement, and motor control center panel 2A(B)C265 inspection and cleaning (R0621640 and R0621642)
- Unit 3 RCIC pump, valve, flow, and unit cooler functional and in-service test (ST-O-013-301-3, Rev. 21) after RCIC planned maintenance outage
- Unit 3 primary containment isolation system normally closed valves operability test (ST-O-007-420-3, Rev. 13) following valve work on the Unit 3 reactor building to torus vacuum breaker valve, AO-3-07B-3502

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities

.1 Outage Risk Management and Control of Outage Activities

a. Inspection Scope

Prior to the outage, the inspectors reviewed Exelon's outage risk control plan and verified that station personnel had appropriately considered the risk, industry experience and previous site specific problems, including inadvertent reactor coolant inventory reduction of the fuel loaded reactor vessel during the 3R13 outage last year. The inspectors discussed the risk control and previous site specific problems with system configuration control, operators, and health physics work practices. The inspectors discussed the stations mitigation/response strategies for potential loss of safety functions with plant management.

The inspectors observed selected maintenance, testing and equipment removal from service and restoration activities. The inspectors verified that component configuration management, test control, and post maintenance testing were performed in accordance with NRC requirements and Exelon procedures. The inspectors reviewed unexpected plant conditions, emergent work, and system configuration control during testing and maintenance activities to evaluate whether the activities were performed in accordance with NRC requirements and Exelon procedures.

The inspectors observed the RHR system operation in alternate decay heat removal (i.e., RHR system aligned to the spent fuel pool to provide pool cooling) to verify that the system was operable and properly aligned. The inspectors verified that the station maintained a defense-in-depth commensurate with the outage risk management goals and in accordance with the Technical Specification requirements.

The inspectors observed and/or reviewed numerous Unit 2 refueling outage activities and controls, including:

- The outage plan and outage risk assessment
- Outage risk management, including changes due to emergent work or unexpected conditions
- Plant shutdown and cooldown controls and activities
- Unit 3 service water and high pressure service water cross-tie activities
- Drop of the 'B' recirculation pump motor above the pump/motor stand during motor lift
- Outage configuration controls including:
  1) availability and accuracy of reactor coolant system instrumentation
  2) electrical power alignments
  3) decay heat removal system operation
  4) availability of reactor inventory makeup water systems
  5) secondary containment controls and integrity

b. Findings

Unit 2 'B' Recirculation Pump Motor Drop

Introduction

The inspectors identified two findings of very low safety significance (Green) during the investigation of the drop of the 2'B' recirculation pump motor during the 2R14 refueling outage. The first finding involved a non-cited violation of Technical Specification 5.1.4 due to an inadequate maintenance procedure for lifting the 'B' recirculation pump motor during the 2R14 outage. The second finding involved Exelon's failure to identify that the 2BH003 rigging hoist had not been adequately load tested prior to initial use.

Description

While reinstalling the 2 'B' recirculation pump motor after off-site maintenance on September 21, 2002, a chain broke in the 2BH003 rigging hoist and the motor, weighing approximately 48,000 pounds, fell approximately ten inches onto the pump/motor stand. At the time of the motor drop, Unit 2 was in Mode 5 (Refueling) with the reactor vessel flooded-up (vessel level greater than 22 feet above the top of the vessel flange), reactor coolant system time-to-boil approximately 36 hours, 'B' subsystem of RHR in-service and core alterations on-going. The Unit 2 secondary containment was operable. No personnel were injured when the motor fell and the reactor coolant system was not damaged. The 2BH003 hoist was installed in the drywell during initial plant construction and is permanently installed plant equipment intended for lifting the 2'B' recirculation pump motor. This hoist had been used earlier in the outage to remove the motor prior to shipping it off-site.

Exelon, General Electric Nuclear Energy, and Flowserve personnel performed extensive engineering assessments, including recirculation piping stress calculations, visual examinations of system and supports and dye penetrate testing of selected piping and welds. Nuclear Reactor Regulation (NRR) and Region I management and staff and the inspectors reviewed Exelon's initial actions, assessments and assumptions and concluded that they were reasonable. Exelon's initial investigation indicated that the chain that failed on the permanent plant rigging hoist was fabricated from material that was not intended for overhead lifting.

The station performed a prompt investigation of this event and commissioned an independent team of off-site Exelon managers and technical staff to review the causes and required actions from this motor drop.

The inspectors noted that in the 1980's, the licensee committed to perform inspections and testing of the 2BH003 hoist per the requirements of ANSI B30.2-1967, "Overhead and Gantry Cranes." ANSI B30.2-1967, Section 2-2.2.2, "Rated Load Test," required hoists to be tested to at least 125 per cent of rated load prior to initial use. The inspectors noted that the 2BH003 rigging hoist had only been tested to 100 per cent of rated load prior to initial use. Exelon personnel did not identify this discrepancy prior to using this hoist during the 2R14 refueling outage.

Additionally, the inspectors noted that analysis performed by the licensee in response to NUREG-0612 “Control of Heavy Loads at Nuclear Power Plants” indicated that a drop of a recirculation pump motor during a lift could disrupt the normal shutdown cooling mode of the RHR system. In response to the analysis results, the licensee determined that the alternate subsystem of shutdown cooling needed to be operable when lifting the recirculation pump motor, in lieu of making the crane hoist and lift single-failure-proof. The inspectors noted that the maintenance procedure and work plans for lifting the ‘B’ recirculation pump motor during the 2R14 outage did not require the alternate subsystem of shutdown cooling to be operable during the lift. The inspectors also noted that the ‘A’ subsystem of RHR was inoperable when this event occurred.

Analysis - Inadequate Maintenance Procedure

Exelon’s inadequate maintenance procedure for lifting the ‘B’ recirculation pump motor during the 2R14 outage, is a performance deficiency. This is a performance deficiency because maintenance procedure, M-C-700-332, Rev. 9, “Rigging and Handling Heavy Loads,” did not require the ‘A’ subsystem of RHR shutdown cooling to be operable during any of the lifts of the ‘B’ recirculation pump motor. Exelon’s analysis indicated that this was important. Traditional enforcement does not apply for these issues because they did not have any actual safety consequences or potential for impacting the NRC’s regulatory function and were not the result of any willful violations of NRC requirements of Exelon’s procedures.

This finding was considered more than minor since it was associated with an attribute and affected the objective of the Mitigating System cornerstone. The applicable attribute was procedure quality of a Maintenance procedure and affected the objective of this cornerstone to ensure the availability of adequate shutdown cooling to respond to initiating events to prevent undesirable consequences. Exelon’s inadequate maintenance procedure for lifting the ‘B’ recirculation pump motor was determined to be of very low safety significance (Green) using the Significance Determination Process for Shutdown Operations. This issue was of very low safety significance because the ‘B’ subsystem of shutdown cooling remained in-service during this event, reactor vessel level was greater than 22 feet above the top of the vessel flange, and reactor coolant system time-to-boil was approximately 36 hours.

Enforcement - Inadequate Maintenance Procedure

Technical Specification 5.4.1, Procedures,” requires that written procedures be established, implemented and maintained covering the activities listed in Regulatory Guide 1.33. Regulatory Guide 1.33 states that maintenance which can affect the performance of safety-related equipment should be properly preplanned and performed in accordance with written procedures appropriate to the circumstances. Contrary to this requirement, in September 2002, procedure M-C-700-332, Rev. 9, “Rigging and Handling Heavy Loads,” used for lifting the ‘B’ recirculation pump motor, did not contain any instructions requiring that the ‘A’ subsystem of RHR shutdown cooling to be operable during these lifts. This violation of Technical Specification 5.4.1 is being treated as a non-cited violation consistent with Section VI.A.1 of the NRC Enforcement

Policy. **(NCV 50-277/02-05-01)**. Exelon entered this issue into its corrective action program as CR#123986.

Analysis - Rigging Hoist Load Test

Exelon's failure to identify that the 2BH003 rigging hoist had not been adequately load tested prior to initial use is a performance deficiency because Exelon did not satisfy its commitment to the NRC to meet the requirements of ANSI B30.2-1967, "Overhead and Gantry Cranes" for 2BH003. Rigging hoist, 2BH003, should have been tested to at least 125 per cent of rated load prior to initial use. Traditional enforcement does not apply for these issues because they did not have any actual safety consequences or potential for impacting the NRC's regulatory function and were not the result of any willful violations of NRC requirements of Exelon's procedures. This finding was considered more than minor since it was associated with an attribute and affected the objective of the Initiating Events cornerstone. The applicable attribute was design control of the original design basis of the plant. This attribute affected the objective to limit the likelihood of those events that upset plant stability during shutdown since the drop of the recirculation pump motor did occur. Exelon's failure to identify that the 2BH003 rigging hoist had not been adequately load tested prior to initial use was determined to be of very low safety significance (Green) using the Significance Determination Process (SDP) for Shutdown Operations. The finding did not result in damage to the reactor coolant system (RCS) barrier or the permanent RCS piping and component supports. Additionally, the reactor vessel level was greater than 22 feet above the top of the vessel flange and the RCS time-to-boil was approximately 36 hours during this event. **(FIN 50-277/02-05-02)** Exelon entered this issue into its corrective action program as CR#123986.

Enforcement - Rigging Hoist Load Test

No violation of regulatory requirements occurred.

.2 Refueling Activities

a. Inspection Scope

The inspectors observed portions of fuel handling and refueling operations to assess the impact on the fuel barrier during handling and from related activities that could impact the integrity of the fuel barrier during subsequent reactor operation. In addition, the inspectors reviewed related reactor vessel maintenance, inspection and testing activities to verify that the activities were performed in accordance with the Technical Specification requirements and Exelon approved procedures. During the conduct of the refueling inspection activities, the inspectors reviewed the associated documentation to ensure that the tasks were performed safely and in accordance with plant technical specifications and operating procedures. The following activities and documents were reviewed or observed:

Refueling Activities

- Fuel handling operations including fuel movement and fuel assembly tracking

- Foreign material exclusion control around the spent fuel pool and reactor vessel cavity

Procedures and Documents

- ON-124, Fuel Floor and Fuel Handling Problems
- ON-125, Loss or Unavailability of Shutdown Cooling
- GP-12, Core Cooling
- AO 10.3-3, RHR System to Fuel Pool Cross-Connect Operation
- OS-CG-200, Outage Planning and Risk Management
- OS-CG-102, Risk Assessments Using ORAM-Sentinal and Contingency Plan Development
- AG-CG-043, Guidelines for the Performance of System Outage

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors reviewed and observed portions of following surveillance tests, and compared test data with established acceptance criteria to verify the systems demonstrated the capability of performing the intended safety functions. The inspectors also verified that the systems and components maintained operational readiness, met applicable Technical Specification requirements, and were capable of performing the design basis functions. The observed or reviewed surveillance tests included:

- ST-O-052-214-2, Rev. 16, “E-4 Diesel Generator Slow Start Full Load and Inservice Test”
- ST-O-033-300-2, Rev. 25, “Emergency Service Water Value, Unit Cooler and Emergency Cooling Tower Fans Functional and Inservice Test”
- ST-O-010-306-3, Rev. 23, “Unit 3 ‘B’ RHR Loop Pump, Valve, Flow and Unit Cooler Functional and Inservice Test”

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

On June 25, 2002, station emergency preparedness personnel discovered that the emergency planning siren base station at the site, was unable to communicate with the offsite sirens, due to external radio frequency noise in the area. The inspectors reviewed the temporary plant modification that restored that ability of the base station to communicate with the offsite sirens. This allowed the base station to initiate the offsite sirens, if required during an emergency.

This review was performed to determine whether the temporary change adversely affected system or support system availability, or adversely affected a function important to plant safety. The inspectors reviewed the associated system design bases, including the UFSAR and Technical Specifications, and assessed the adequacy of the 10 CFR 50.54(q) emergency plan evaluation for this issue. The inspectors also assessed configuration control of the temporary change by reviewing selected drawings and procedures to verify that appropriate updates had been made, and were in compliance with Exelon Nuclear's procedure, "Temporary Configuration Changes," CC-AA-112, Rev. 5. The inspectors reviewed the temporary modification documents to verify that the implemented changes were consistent with the approved documents. The following temporary modification and documents were included in the review:

Temporary Modifications

- Emergency Preparedness Sirens Being Made Inoperable by Radio Frequency Noise

Procedures and Documents

- CC-AA-112, Rev 5, "Temporary Configuration Changes"
- CC-MA-112-1001, Rev 0, "Temporary Configuration Change Packages (TCCP)"
- Engineering Change Request (ECR) PB 02-00435-000
- Emergency Plan for Peach Bottom, Units 2&3
- EP-C-12, Rev. 0, "Corrective Maintenance of the Control Stations Associated with the Offsite Alert and Notification Sirens (ANS) System"

b. Findings

No findings of significance were identified.

EMERGENCY PREPAREDNESS [EP]

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors observed a simulator-based emergency preparedness drill conducted by Exelon on August 29, 2002. The inspectors focused on the performance of risk significant evolutions by site personnel in the technical support center (TSC). These risk significant evolutions included emergency classification, NRC and offsite agency notifications, radiological assessment, and coordination with the emergency operations facility (EOF) to issue the protective action recommendations (PARs). The inspectors also evaluated the emergency response organization's recognition of abnormal conditions, command and control, communications, utilization of repair and field monitoring teams, and the overall implementation of the emergency plan. The inspectors observed Exelon's conduct of the drill critique and verified that any weaknesses or deficiencies observed during the drill were discussed and evaluated during the critique.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY
Cornerstone: Occupational Radiation Safety [OS]

2OS1 Access Control To Radiologically Significant Areas

g. Inspection Scope

The inspectors conducted the following activities and reviewed the following documents to determine the effectiveness of access controls to radiologically significant areas:

- The inspectors reviewed radiological controls established for exposure significant work areas within Radiation Areas, High Radiation Areas, and potential Airborne Radioactivity areas and reviewed in-place controls and radiological surveys for acceptability. The inspectors directly observed work in progress and conducted an independent review of the adequacy and effectiveness of radiological controls, including implementation of procedure requirements for selected risk significant radiological work activities. Also reviewed were controls for highly activated or contaminated non-fuel materials stored within spent fuel or other storage pools. The inspectors verified radiological controls such as required surveys, job coverage, and contamination controls were implemented; personnel dosimetry was used and properly worn; worker briefings were provided, and workers were knowledgeable of ambient radiological conditions. The tasks reviewed in Unit 2 included permanent shielding installation, insulation work activities, reactor re-circulation pump impeller replacement, control rod drive removal, refueling activities, in-core detector removals, reactor water clean-up

work activities, and diving activities. Also reviewed was turbine generator steam supply work activities including feedwater heater replacement and large valve work activities.

- The inspectors walked down and made independent radiation measurements of radiation levels within accessible radiologically controlled areas (RCAs) at the station to verify that areas expected to exhibit radiation levels in excess of 100 mR/hr were properly posted and controlled as High Radiation Areas, and to confirm that radiation dose rates were consistent with survey data. The inspectors reviewed and challenged five locked High Radiation Area access points to determine if access controls were sufficient to preclude unauthorized entry and conducted and inventory of locked High Radiation Area keys and their issue status. Areas toured included the Unit 2 drywell and reactor building, radwaste facilities, and Unit 2 and 3 turbine buildings

- The inspectors reviewed implementation of changes to High Radiation Area access control procedures and Technical Specifications to ensure no apparent degradation in access controls had occurred. The inspectors discussed the adequacy of the controls to such areas with the Manager, Radiation Protection.

- The inspectors reviewed radiation work permits (RWPs) used for access control to radiologically significant areas to ensure work control instructions and barriers were acceptable and specified, surveys and postings were accurate, and whether airborne radioactive material samplers were properly located for measurement purposes. Also reviewed was the appropriateness of electronic personnel dosimetry (EPD) alarm set points, worker knowledge on actions to take upon EPD alarm, and proper placement of dosimetry. The review included assessment of possible radiation dose-rate gradients and proper positioning of dosimetry.

- The ambient radiological source term was evaluated to ensure radiological dose assessments were properly performed including dose assessment for potential transuranic radionuclides. The inspectors reviewed radiological surveys to determine if Exelon was conducting evaluations of hard-to-detect radionuclides including instrument detection capabilities.

- The inspectors selectively reviewed instances of personnel contamination since the previous inspection, and during the current outage to evaluate the magnitude and frequency of the instances and the adequacy of dose assessment methods. Also reviewed was whole body count data and associated dose assessments, as appropriate.

The inspectors reviewed selected corrective action program items (since April 1, 2002) to determine if issues were being evaluated, prioritized, and resolved ((Condition Reports (CRs) and Action Requests (ARs)): Nos. CR122913, CR123529, CR123523, CR122899, CR122981, AR108365, AR104865, AR101951, AR102533, AR102589). The review included a check for possible repetitive issues such as radiation worker or radiation protection personnel errors.

The inspectors evaluated Exelon's performance against applicable Exelon procedures, 10 CFR 20, and applicable Technical Specifications.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls

a. Inspection Scope

The inspectors selectively reviewed the adequacy and effectiveness of the program to reduce occupational radiation exposure to as low as is reasonably achievable (ALARA). The inspectors conducted the following activities and reviewed the following documents to determine the effectiveness of ALARA planning and controls:

- The contingency planning for potential increases in ambient radiation levels in the Unit 2 reactor drywell during the upcoming outage were reviewed including implementation of those plans, as appropriate.

- Planned work activities, likely to result in the highest personnel individual and collective exposures during the Unit 2 refueling outage, were reviewed to evaluate the adequacy of ALARA planning for the activities. Planned activities reviewed included standing radiation work permits, scaffolding installation, shielding activities, refueling floor activities, reactor coolant pump impeller work, diving activities, and major valve work.

- Job site inspections were made to evaluate: use of engineering controls to achieve dose reductions, use of low dose wait areas, on-the-job supervision to ensure implementation of ALARA requirements, and variations in worker exposures. Jobs reviewed included scaffolding installation, shielding activities, refueling floor activities, in-service inspections, reactor coolant pump impeller work, diving activities, and major valve work.

- Plant collective exposure history, current exposure trends, ongoing and planned activities, and the station's two year and three year rolling average collective dose data were reviewed to assess current performance and exposure challenges. Also reviewed were Unit 3 2001 outage post-job reviews and implementation of lessons learned (RWP Nos. 3-01-00084, 92, 97, 98, 99).

- The site specific historical trends and current status of tracked source terms were reviewed to determine if the overall plant source term was increasing, stable or declining, and to identify Exelon's source term priorities and reduction strategies.

- ALARA goals, dose reduction initiatives, and the current initiatives to reduce occupational exposure, were reviewed to evaluate efforts in these areas. The review included source term control strategies and results. The process for initiating work-in-progress reviews was also reviewed.

- The work control process was evaluated relative to its interface with the ALARA program including scheduling and modification work activities. Included in this review was the accuracy of estimating person-hours and collective exposures for work planning purposes. The inspector reviewed the interfaces between onsite groups to identify interface problems or missing program elements.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation

a. Inspection Scope

The inspectors selectively reviewed elements of the radiation monitoring instrumentation program to determine the accuracy and operability of radiation monitoring instruments that were used for the protection of occupational workers. The following activities were conducted and associated documentation was reviewed:

- The inspectors reviewed in-use handheld instrumentation to ensure that instrumentation had been source checked as appropriate, calibration was up to date, and the instrument was proper for the current source term and application.

- The inspectors selectively reviewed the calibration of the following radiation monitoring and survey instruments used on radiological risk significant work activities (e.g., the Unit 2 refueling floor, valve work on residual heat removal valves, and non-regenerative heat exchanger work):

  - AMP-100 (Sn. 5097010, 5097013)
  - PRM6 (Sn. 1553)
  - GAST (Sn. 4084)
  - SAC-4 (Sn. 805)
  - RO2-A (Sn. 558, 332753)
  - RM-14 (Sn. 5568)

  1) Low volume air samplers (Sn. 677, 788)
  2) Lapel air samplers (Sn. 211701, 3818)
  3) Telepole No. 6698016

The inspectors also reviewed Exelon's conformance with the applicable Mine Safety and Health Administration (MSHA) and National Institute for Occupational Safety and Health (NIOSH) respirator approval (TC-21C-495) for use of powered air-purifying respirators used for work on reactor water cleanup heat exchangers.

b. Findings

No findings of significance were identified.

RADIATION SAFETY
Cornerstone: Public Radiation Safety [PS]

2PS3.1 Radiological Environmental Monitoring Program (REMP)

a. Inspection Scope

The inspectors reviewed the following documents to evaluate the effectiveness of Exelon's REMP. The requirements of the REMP were specified in the Technical Specification/Offsite Dose Calculation Manual (TS/ODCM):

- the 2001 Annual REMP Report, including selected analytical data for 2002 REMP samples;
- the 2001 Annual Radiation Dose Assessment Report;
- the most recent ODCM (Revision 12, May 17, 2000) and technical justifications for ODCM changes, including sampling locations;
- the most recent calibration results of the primary (33-ft, 75-ft, and 320-ft), the Hillpole (41-ft), and the River-Tower (45-ft) meteorological monitoring instruments for wind direction, wind speed, and delta temperature;
- implementation of the instrument accuracy contained in Safety Guide 23, Onsite Meteorological Programs (wind direction: $\pm 5^{o}$; wind speed:±0.5 mph; and temperature: $\pm 0.5^{o}$C);
- Availability of the meteorological monitoring instruments from January 1, 2002 to June 30, 2002;
- 2001/2002 Weekly Reports containing any troubles and resolutions;
- review of calibration procedure and the most recent calibration results for all TS/ODCM required air samplers;
- implementation of the environmental thermoluminescent dosimeters (TLDs) program, including transit dose calculation;
- Exelon's QC evaluation of the inter-laboratory and intra-laboratory comparison program and the corrective actions for any deficiencies;
- the 2001QA audit (NOSA-KS-01-4Q) for the REMP and the Meteorological Monitoring Program implementations;
- the Land Use Census procedure and the 2001 results, and
- associated REMP procedures, including vendor's analytical procedures.

The inspectors toured and observed the following activities to evaluate the effectiveness of Exelon's REMP.

- operability of the primary and backup meteorological instruments;
- walkdown to determine the REMP sample availability (water, milk, fish, and sediment);
- walkdown for determining whether air samplers and a 25% sample of the environmental TLDs were located as described in the ODCM (including control and indicator stations) and for determining the equipment material condition; and
- visit Exelon's Power Laboratory (Coatesville, PA) to observe the calibration technique for the air sampler.

b. Findings

No findings of significance were identified.

2PS3.2 Radioactive Material Control Program

a. Inspection Scope

The inspectors reviewed the following documents and observed Exelon's activities to ensure that Exelon's surveys and controls were adequate to prevent the inadvertent release of licensed material to the public domain.

- the methods used for control, survey, and release of material from the Radiologically Controlled Area (RCA);
- the most recent calibration results for the radiation monitoring instrumentation (small articles monitor, SAM-9), including the (a) alarm setting, (b) response to the alarm, (c) the sensitivity, and (d) alarm failure rate;
- the use of SAM-9 by employees and contractors;
- the most recent calibration results for the gamma measurement system used in the material control program;
- bag-monitor operation;
- Exelon's criteria for the survey and release of potentially contaminated material; and
- associated procedures and records to verify for the lower limits of detection.

The review was against criteria contained in: (1) NRC Circular 81-07, "Control of Radioactively Contaminated Material"; (2) NRC Information Notice 85-92, "Surveys of Waste before Disposal from Nuclear Reactor Facilities"; (3) NUREG/CR-5569, "Health Position Data Base (Positions 221 and 250)"; and (4) Exelon's procedures.

b. Findings

No findings of significance were identified.

3. SAFEGUARDS
Cornerstone: Physical Protection [PP]

3PP3 Response to Contingency Events

The Office of Homeland Security (OHS) developed a Homeland Security Advisory System (HSAS) to disseminate information regarding the risk of terrorist attacks. The HSAS implements five color-coded threat conditions with a description of corresponding actions at each level. NRC Regulatory Information Summary (RIS) 2002-12a, dated August 19, 2002, "NRC Threat Advisory and Protective Measures System," discusses the HSAS and provides additional information on protective measures to licensees.

a. Inspection Scope

On September 10, 2002, the NRC issued a Safeguards Advisory to reactor licensees to implement the protective measures described in RIS 2002-12a in response to the Federal government declaration of threat level "orange." Subsequently, on September 24, 2002, the OHS downgraded the national security threat condition to "yellow" and a corresponding reduction in the risk of a terrorist threat.

The inspectors interviewed Exelon personnel and security staff, observed the conduct of security operations, and assessed Exelon's implementation of the threat level "orange" protective measures. Inspection results were communicated to the region and headquarters security staff for further evaluation.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES [OA]

4OA1 Performance Indicator Verification

.1 RETS/ODCM Radiological Effluent Occurrences

a. Inspection Scope

The inspectors reviewed the following documents to ensure Exelon met all requirements of the NRC Performance Indicator (PI) from the second quarter 2001 to the second quarter 2002 (4 quarters):

- Monthly projected dose assessment results due to radioactive liquid and gaseous effluent releases;
- Quarterly projected dose assessment results due to radioactive liquid and gaseous effluent releases; and
- Associated procedures.

b. Findings

No findings of significance were identified.

.2 Safety System Functional Failures (SSFFs)

a. Inspection Scope

The inspectors reviewed selected station's records to assess the accuracy and completeness of the SSFF PI data. The records reviewed included selected Technical Specification limiting condition for operation logs, licensee event reports and condition reports. The information reviewed was compared against the criteria contained in Nuclear Energy Institute (NEI) 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 2, to verify that conditions met the NEI criteria, were recognized, identified, and accurately reported as a Performance Indicator. The following specific indicators were reviewed:

- Units 2 & 3 safety system functional failures

b. Findings

No findings of significance were identified.

.3 Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspectors examined the adequacy and effectiveness of Exelon's implementation of the Occupational Exposure Control Effectiveness PI. The inspectors reviewed the following matters:

- The inspectors reviewed corrective action program records for occurrences involving High Radiation Areas, Very High Radiation Areas, and unplanned personnel exposures for the (since April 1, 2002) against the applicable criteria specified in NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 2, to verify that conditions that met the NEI criteria were recognized and identified as Performance Indicator occurrences, as appropriate.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

.1 Selected Issue Follow-up Inspection - Numerous Air Operated Valve (AOV) Packing Leaks Identified During Walkdowns: Condition Report (CR) # 75658)

a. Inspection Scope

A Problem Identification and Resolution Inspection for a selected issue was performed to review Exelon's actions in identifying the problem and the implementation of the follow-up corrective actions. The item selected for this review was a Condition Report that documented extensive packing leaks in air-operated valves in the Unit 3 Moisture

Separator, and Feedwater Heater Drains (CR# 75658). These leaks had been identified in the walk-down inspections performed during the outage 3R13, and the above CR was initiated to investigate the cause, and develop an effective corrective action to resolve the problem. The inspection included the review of the root cause analysis report, the action assignment report (AR 00075658), the maintenance history of the affected valves, valve packing data sheets, Exelon Packing and Gasket Application Support Installation Software (PAGASIS) for evaluation and redesign of valve packing, and visual examination of accessible valves.

b Findings

No findings of significance were identified.

.2 Selected Issue Follow-up Inspection - Recent Personnel Human Performance Problems in Operations: CR # 78731

a. Inspection Scope

The inspectors performed a review to verify that Peach Bottom personnel had taken appropriate corrective actions in response to a self-identified increasing trend of Operations' human performance issues. This review included the common cause analysis for Operations' human performance issues and the subsequent root cause analyses and the corrective actions (CR# 84565) associated with this self-identified adverse trend.

The inspectors interviewed several individuals, involved with both the identification and correction of the identified issues, in an effort to ensure that human performance issues in operations had been correctly identified and measures had been put into place to resolve these issues. Discussions were also held with those enrolled in the most recent initial licensed operator training class to determine if they had received the training that was part of the corrective actions put into place to address the adverse trend in human performance issues.

b. Findings

No findings of significance were identified.

.3 Problem Identification Associated with the Radiological Environmental Monitoring Program (REMP) at Peach Bottom

a. Inspection Scope

The inspectors reviewed the following documents to evaluate the effectiveness of Exelon's problem identification and resolution processes:

- Action Request (ARs) and corrective actions;
    - Meteorological Monitoring Program (AR-119859), and
    - ODCM/REMP (AR-88572, AR-105150, AR-115979).

- 2002 Self-Assessments (4/15/02, 7/15/02, and 7/15/02) for the REMP.

b. Findings

No findings of significance were identified.

.4 Dispositions of Inservice Inspection (ISI) Findings at Peach Bottom

a. Inspection Scope

The inspectors reviewed samples of dispositions of ISI findings that were accepted or rejected in the reports shown in Attachment 1. The inspectors verified in each case reviewed that SSC problems were identified by ISI, evaluated, and where appropriate, placed into the corrective action program for repair or replacement.

b. Findings

No findings of significance were identified.

4OA6 Meetings

.1 Exit Meeting Summary

The inspectors presented the results of the inspection to Mr. R. West and members of Exelon's management on October 11, 2002. Exelon management acknowledged the findings presented. No proprietary information was identified.

.2 Regulatory Conference

On August 23, 2002, representatives from Exelon met with the staff in the Region I offices to present their views on the significance of the preliminary White findings documented in inspection report 50-277/02-07, 50-278/02-07. Exelon's presentation materials are available electronically from the Publically Available Records (PARS) component of NRC's document system (ADAMS) (Ascension number ML022680034). ADAMS is accessible from the NRC Web site at: http://www.nrc.gov/reading-rm/adams.html (The Public Electronic Reading Room).

ATTACHMENT 1

SUPPLEMENTAL INFORMATION

a. Key Points of Contact

Exelon Generation Company

R. West, Current Site Vice President
J. Doering, Former Site Vice President
G. Johnston, Plant Manager
B. Hanson, Operations Director
J. T. Anthony, Maintenance Director
P. Davison, Site Engineering Director
C. Behrend, Senior Manager Plant Engineering
D. Warfel, Senior Manager Design Engineering
H. Trimble, Radiation Protection Manager
B. Norris, Radiological Engineering Manager
I. Seddon, Chemistry/Radwaste Manager
J. Stenclik, Manager of Chemistry
D. Henry, Regulatory Assurance Manager
W. Trump, Manager, Nuclear Security

b. List of Items Opened, Closed, and Discussed

Opened/Closed

50-277/02-05-01	NCV	Inadequate Rigging Procedure for the 'B' Recirculation Pump Motor Lift
50-277/02-05-02	FIN	Failure to Identify that the 2BH003 Rigging Hoist had not been Adequately Load Tested prior to Initially Lifting the 'B' Recirculation Pump Motor

c. List of Documents Reviewed

NRC Generic Letter 89-13 Service Water System Problems Affecting Safety- Related Equipment, July 18, 1989

Philadelphia Electric Company, Peach Bottom Atomic Power Station, Units 2 and 3 Response to NRC Generic Letter 89-13, January 29, 1990

PBAPS Commitment T04201 "NRC Generic Letter 89-13, Action 2," 8/19/02

PBAPS Commitment T04333 "PBLR NRC Generic Letter 89-13 Activities," 8/19/02

GE Nuclear Energy Service Information Letter (SIL) No. 636 Revision 1, Additional terms included in reactor decay heat calculations, 06/06/01

Bechtel Corporation Hydraulic Network Flow Balancing Heat Exchanger Performance Utility, for Limerick Generating Station and Peach Bottom Atomic Power Station, 10/24/91

Exelon Nuclear, Procedure for Daily Surveillance Log, ST-O-098-1N-2, Revision 35, 8/19/02

Exelon Nuclear, Procedure Daily Surveillance Log, ST-O-098-1N-3, Revision 29,

PECO Energy Company, Procedure RT-O-010-660-3, Revision 5, RHR Heat Exchanger Performance Test

PECO Energy Company, Procedure RT-X-010-661-3, Revision 2, RHR Heat Exchanger Performance Calculation Test

Exelon Nuclear, Daily Surveillance Log, ST-O-098-1N-2, Revision 35, 8/14/02

Exelon Nuclear, Daily Surveillance Log, ST-O-098-1N-2, Revision 34, 8/12/02

Exelon Nuclear, Daily Surveillance Log, ST-O-098-1N-3, Revision 28, 8/12/02

Exelon Nuclear, Daily Surveillance Log, ST-O-098-1N-3, Revision 29, 8/12/02

Exelon Nuclear Procedure RT-I-033-631-3, Revision 5, RHR Room Cooler Heat Transfer, 4/3/02

Work Order R0754857, RHR RM Cooler ESW Heat Transfer (3DE058), 2/15/2000

Work Order R0760359, CS RM Cooler ESW Heat Transfer (3BE057), 2/10/2000

Work Order R0722613, RHR RM Cooler ESW Heat Transfer (3DE058), 1/22/1999

Work Order R0792615, CS RM Cooler ESW Heat Transfer (3BE057), 1/16/2001

Work Order R0790486, RHR RM Cooler ESW Heat Transfer (3DE058), 12/21/2000

CR 75658, Numerous AOV Packing Leaks Identified During Walkdowns.
AR 00075658, Task Assignment Package for CR 75658, including associated maintenance Work Orders.

CR Assn # 09, Short Term Fix-Guidance for Adequate Packing Configuration
CR Assn # 10, Training to evaluate packing qualifications
CR Assn # 05 through 08, Long Term Fix.
Common Cause Analysis Report for CR 75658, dated 12/21/01
Valve Data Sheets for Affected Valves (on PAGASIS computer screen)
P&IDs
M-145, St. 1, rev 15
M-304, St. 1, rev 45

M-155, St. 1, rev 11
M-305, St. 2, rev 28
M-137, St. 1, rev 11

Examination Plans Reviewed

2R14 ISI/CISI/IVVI Examination Plan 6/28/02 PBAPS Unit 2 Third Interval In-Service Inspection Specifications NE-290 and NE- 291 Rev 2
2R14 ISI/IVVI Examination Plan 6/28/02 Augmented ISI

Action Requests (A/Rs)

A/R A1338796 10/05/01 U3 Reactor Head Meridional Weld Ultrasonic Examination
A/R A1176924 10/22/98 Evaluate the B Loop Core Spray T-Box Indications
A/R A1384492 9/18/02 Spring Hanger Core Spray Torus Section Loop A
A/R A1384541 9/12/02 U2 Reactor Vessel Steam Dryer Cracking

Steam Dryer Examination and Disposition of Findings

GE 26A5969 PB2 Steam Dryer Repair Installation Inspection, Rev 0, RMCN00979,
INR No PB2R14-2002-02 Broken Steam Dryer Instrumentation Pipe Bracket IVVI Video 9/16/02
INR No PB2R14-2002-01 Broken Steam Dryer Tie Rod Bar IVVI Video 9/14/02
INR No PB2R14-2002-01 Broken Steam Dryer Tie Rod Bar IVVI Video Rev 1 9/1502
Letter, Ciemniewicz to Moser, et al PB2 Steam Dryer Inspection Plan
NRC IN 2002-26 9/11/2002 Failure of Steam Dryer Cover Plate After Recent Power Uprate
SIL No 644 8/21/2002 BWR/3 Steam Dryer Failure
Exelon Peach Bottom Dryer Degradation/Implications for the Exelon BWR Fleet
GENE DRF No. 0000-0002-8696 April 2002 Lab Evaluation of Steam Dryer Tie Bars Unit 3
GENE DRF No. 0000-0002-8696 Sept 2002 Root Cause for Tie Bar Failure Unit 3

Procedures Reviewed

GE-UT-209	Procedure for Automated Ultrasonic Examination of Dissimilar Metal Welds, and Nozzle Safe End Welds, Version 10, 8/7/01
GE-PT-100	Procedure for Liquid Penetrant Examination (Visible Dye, Color Contrast, or Fluorescent), Version 2, 2/4/98
GE-UT-233	Procedure for Automated Ultrasonic Data Analysis of Piping Welds in Accordance with PDI, Version 4, 8/16/01
GE-MT-100	Procedure for Magnetic Particle Testing (Dry Particle, Color Contrast or Wet Particle, Fluorescent)
MAG-CG-407	Visual Examination of Pumps, Valves, Bolting, and Component Supports 8/22/01

Condition Reports

CR 00123275 9/17/02 Rejectable indication (MT) on core spray integral attachment 14HBH-5 (IA)
CR 00123135 7/17/02 Rejectable Indication on Rigid Restraint 10-GB-S-56 Unit2 RHR

Radiographic Inspection Results

GE 66065 23-T124-1 Wo#C0199297-41 CHK-2-23C-65 Shop Weld Rad Exam 9/14/02
GE 66065 23-2TI16-2 Wo#C0199297-20 CHK-2-23C-65 Field Weld Rad Exam 9/14/02
GE 66065 23-2TE20-25 Wo#C0199297-20 CHK-2-23C-65 Field Weld Rad Exam 9/14/02
GE 66065 23-2TI16-2R1 Wo#C0199297-47 CHK-2-23C-65 Repair Weld Rad Exam 9/16/02

Engineering Change Requests (ECRs)

ECR 01-00999	GENE B13-02064, Section 35, Rev 0, Evaluation of Indications in Peach Bottom Unit 3 Vessel Closure Head for Continued Operation, October 2001
ECR PB 01-00999	10/07/01 Unit #3 Reactor Head Meridional Weld Ultrasonic Indications
ECR PB 98-0275	U2 CS T-Box Crack UT Examination 10 CFR 50.59 10/28/98

Ultrasonic Examination Results

GE 123200 PB Unit 2 Component 2-BHB-8 Safe-end to Nozzle N2B UT Exam 9/14/02
GE 008600 PB 2R10 1CK5C RPV Dollar Plate Weld CH-C-1 UT Exam10/17/94
GE 009700 PB Unit 2 2R14 N6A-IRS, CH-NA-IRS RPV - CLOSURE HEAD UT Exam9/15/02
GE 010700 PB Unit 2 2R14 CH Studs 1-92 (In Place) Bolting 9/14/02
GE 009400 PB Unit 2 2R14 Nozzle to Shell Weld Manual UT Exam 9/15/02
SwRI No 17-3047-02 PB Unit 2 RPV Head Weld CHC 1, CHMF UT Exams 9/27/72

Drawings

GE 730E157 PB Unit II & III Final As-Built Dwg Steam Dryer 9/9/75
ISI-2-RV-01 ISI Component Drawing Reactor Vessel Details Units 2&3 7/06/90
CBI Supplementary Sheet for Manufacturer's Data Report (RPV) PO 205H4642 8/31/70

d. List of Acronyms

A/R	Action Request
AOV	Air Operated Valve
ALARA	As Low As Reasonably Achievable
ARs	Action Requests
ASME	American Society of Mechanical Engineers
CBI	Chicago Bridge and Iron
CFR	Code of Federal Regulations
CH	Channel Head
CR	Condition Report
CS	Core Spray
DBD	Design Basis Document
ECR	Engineering Change Request
EOF	Emergency Operations Facility
EPD	Electronic Personnel Dosimetry
ESW	Emergency Service Water
FSAR	Final Safety Analysis Report
GE	General Electric
HPCI	High-Pressure Coolant Injection
HRA	High Radiation Area
HSAS	Homeland Security Advisory System
ISI	In-service Inspection
IVVI	In-vessel Visual Inspection
MT	Magnetic Particle Testing
MSHA	Mine Safety and Health Administration
NCV	Non-Cited Violation
NIOSH	National Institute for Occupational Safety and Health
NEI	Nuclear Energy Institute
ODCM	Offsite Dose Calculation Manual
OHS	Office of Homeland Security
PAGASIS	Packing and Gasket Application Support Installation Software
PARs	Protective Action Recommendations
PBAPS	Peach Bottom Atomic Power Station
PI	Performance Indicator
QA	Quality Assurance
QC	Quality Control
RCA	Radiologically Controlled Area
RCIC	Reactor Core Isolation Cooling
RCS	Reactor Coolant System
REMP	Radiological Environmental Monitoring Program
RHR	Residual Heat Removal
RIS	Regulatory Information Summary
RPV	Reactor Pressure Vessel
RM	Room
RWP	Radiation Work Permit
SAM	Small Articles Monitor
SIL	Service Information Letter

SSCs	Systems, Structures, or Components
TCCP	Temporary Configuration Change Package
TLD	Thermoluminescent Dosimeter
TS	Technical Specifications
TSC	Technical Support Center
UFSAR	Updated Final Safety Analysis Report
USNRC	United States Nuclear Regulatory Commission
UT	Ultrasonic Test